

CLAIMS

We claim:

1

2 1. A method comprising:
3 storing data in a data oriented storage medium;
4 storing an operating system program in the same storage medium as the data; and
5 protecting the operating system program from being overwritten when data is
6 written to the storage medium.

1 2. The method of claim 1, wherein the storing the data and operating system
2 program are achieved on a NAND type flash memory device.

1 3. The method of claim 2, wherein protecting the operating system program is
2 achieved by using a hidden memory block in the NAND type flash memory device to
3 store the operating system program.

1 4. The method of claim 2, wherein protecting the operating system program includes
2 identifying a hidden block as a bad memory block, but using a tag to identify that the bad
3 memory block is a good block storing the operating system program.

1 5. The method of claim 1, wherein protecting the operating system program includes
2 identifying a portion of the storage medium as bad, but using a tag to identify that the bad
3 portion of the storage medium is good and used to store the operating system program.

1 6. A method comprising:
2 accessing a storage device to identify a portion of the storage area as a bad area
3 for storing data;
4 determining if a specified tag identifying a presence of an operating system
5 program is present; and
6 loading the operating system program stored in the portion of the storage area
7 identified as bad if the tag is present.

1 7. The method of claim 6, wherein loading the operating system program loads a
2 boot routine which is used to boot a system.

1 8. The method of claim 7, wherein accessing a storage device accesses an external
2 memory device to an integrated circuit to boot the integrated circuit.

1 9. The method of claim 8, wherein accessing a storage device accesses a NAND
2 type flash memory device external to an integrated circuit to boot the integrated circuit.

1 10. A memory device comprising:
2 a plurality of memory blocks utilized to store data;
3 a hidden memory block used to store an operating system program instead of data,
4 the hidden memory block designated as a bad block so that data will not be written into
5 the hidden memory block; and
6 a tag associated with the hidden memory block to identify that the hidden memory
7 block contains the operating system program.

1 11. The memory device of claim 10, wherein the memory blocks, including the
2 hidden memory block, are of NAND type flash memory.

1 12. The memory device of claim 11, wherein the operating system program is a boot
2 routine to boot a system.

1 13. The memory device of claim 11, wherein the boot routine includes a boot
2 manager and at least one other boot program.

1 14. A multi-function handheld device comprising:
2 a system on a chip integrated circuit that includes an internal memory and a
3 processor;
4 a data oriented memory coupled external to the integrated circuit to operate as
5 data storage medium for the integrated circuit, the data oriented memory including a
6 hidden area to store an operating system program which boots the integrated circuit.

1 15. The multi-function handheld device of claim 14, wherein the data oriented
2 memory is a NAND type flash memory.

1 16. A multi-function handheld device of claim 15, wherein the operating system
2 program is stored in the hidden area which is designated as a bad block, but a tag
3 identifies the hidden area as a good block containing the operating system program.

1 17. A multi-function handheld device 16 wherein the operating system program
2 includes a boot manager and at least one other boot program.

1 18. A multi-function handheld device 16 wherein the operating system program
2 includes a boot manager, Universal Serial Bus (USB) firmware and at least one other
3 boot program, wherein at boot up of the integrated circuit, the boot manager boots the

- 4 USB firmware if a USB connection is present, otherwise the at least one other boot
- 5 program is booted.